



Alarm Bag

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TOOLS:

- [Scissors \(1\)](#)
- [Soldering iron \(1\)](#)
- [hand-held electric drill and 1/8" bit \(1\)](#)



PARTS:

- [12v DC Piezo Siren \(1\)](#)
from RadioShack.
- [Panel Mount Mono 1/8" Phone Jack \(2\)](#)
from RadioShack. Note that this is a headphone jack, not a telephone jack.
- [6-ft Audio Cable \(1\)](#)
from RadioShack.
- [8 "AA" Battery holder \(1\)](#)
from RadioShack.
- [Batteries \(8\)](#)
from RadioShack. 4 pack, need two packs.
- [Battery Snap Connectors \(1\)](#)
from RadioShack.
- [1/4" plywood and a scrap of 1/8" clear plastic \(1\)](#)
- [A messenger-style shoulder bag \(1\)](#)
Or any other sort of hand or shoulder bag.
- [Heat-shrink tubing, multicolor](#)

[assortment \(1\)](#)[from RadioShack.](#)

- [Jewelry wrapping wire \(1\)](#)

SUMMARY

This project uses simple electronics to create an alarm circuit for a shoulder bag. The key components are two 1/8" headphone jacks with "normally closed" switches, which detect whether a plug is in the jack. Wiring two of these jacks in series with an alarm creates a circuit that activates when both plugs are removed. With this arrangement, you can use one jack to keep the alarm from sounding while you arm the system. The other jack accepts a plug that you can tether to a belt loop or other anchor. When the bag is pulled away from its anchor plug, the alarm sounds. You can of course use this same circuit for a handbag, backpack, or any other personal cargo carrier.

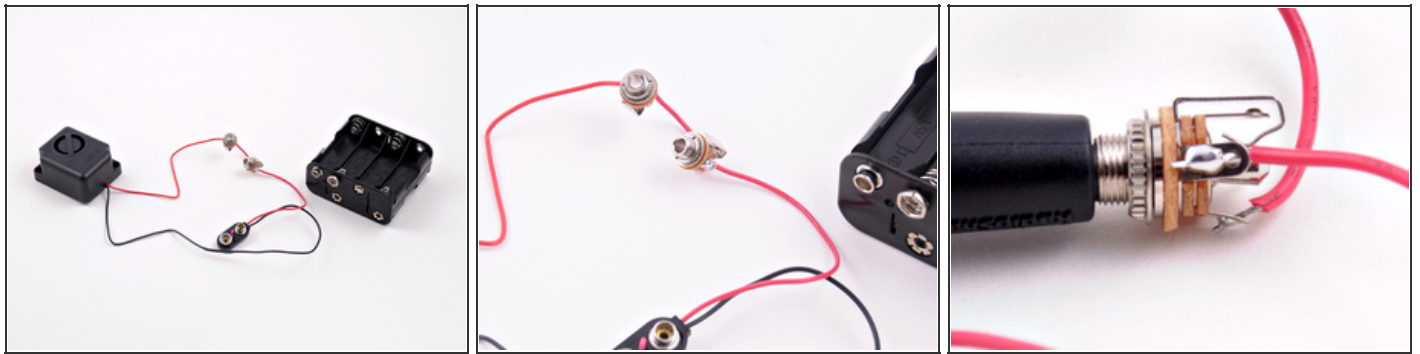
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Step 1 — Assemble the Parts



- We're going to make a simple circuit from the battery clip, through to the two audio jacks, and finally, attaching to the siren itself.
- The idea is that the alarm will sound when both audio plugs are removed from the jacks - we use two so that the alarm can be safely "deactivated" while the trigger cable is removed from whatever it is attached to.

Step 2 — Wiring the Parts



- This circuit is very simple. Using just the red and black wires attached to the siren and the battery clip, we're going to put all the components in series.
- The sockets have a "normally closed" switch built right in. We will be using this as our alarm trigger. Look at the pictures and you will see the 2 (of 3) terminals we connected to take advantage of the switch.
- When both plugs are removed, the circuit will be completed and the alarm will sound.

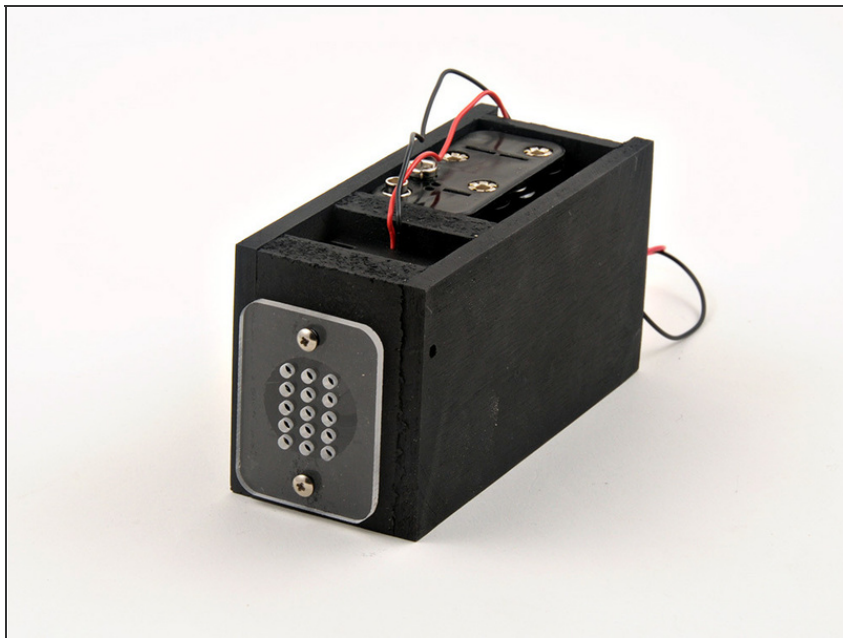
Step 3 — Preparing the Trigger Cable



- Additionally, we need to cut the audio cable in two, with one part longer than the other. I created a small loop in the end of the long part with jewelry wire and heat shrink.
- Put the heat shrink on BEFORE you wrap the wire!



Step 4 — Making the Enclosure



- Originally I was going to use a plastic enclosure, but the batteries wouldn't fit inside, and the next size up was too big. Instead, I made a small custom case from plywood that fit snugly around all the parts.
- To create a speaker hole to the outside, drill equidistant holes in a piece of clear plastic with a 1/8" bit.

Step 5 — Installing in the Bag



- To fit the enclosure into the bag, we first need to place it inside, up against the side wall. I drilled two small holes to fit the front plate.
- Using this as a guide, I cut out a 1" circular hole for the speaker and replaced the front plate.
- Finally, drill a hole in the side and install one jack. This is where the trigger cable will be placed when the device is armed.

Step 6 — Testing!



- First thing is to make sure the system is disarmed by installing a plug into the jack inside the bag.
- Next the battery clip can be connected. This is the "unarmed" state.
- When you want to arm the system, attach the long cable around the "home" anchor that you want the bag to remain near - this could be your wrist, your belt, a bike pannier, or table leg.
- Plug in the external jack first, **then** remove the internal one.
- Now the siren is armed. Anyone snatching the bag will disconnect the output plug and trigger the alarm.
- To disarm, just install the internal plug, and the external one can be safely removed.
- One final tip: In time, you might find that the external jack pulls free from the bag wall. I used a larger washer on the socket and that seemed to fix it.



This project uses some common components in a slightly unorthodox way to produce something completely new -- specifically the switching action of audio sockets. This is one of the principals of invention -- the combination of old stuff in a different way to make new stuff.

A possible extension to this project would be to make a light-controlled switch with a 555 timer and a transistor. So when the bag is opened, the alarm would sound for a fixed period.

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